

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of producing a cladding tube for nuclear fuel for a nuclear boiling water reactor, which method comprises the following steps:

forming a tube ~~which comprises~~ comprising:

an outer cylindrical component comprising a first composition mainly containing zirconium; and

an inner cylindrical component metallurgically bonded to the outer component, wherein also the inner component comprises a second composition comprising mainly contains zirconium, 0.1 to 0.4 percentage by weight Sn, 400 to 1500 ppm Fe, less than 600 ppm O and the rest Zr, except for impurities of a content that does not exceed that which is normally accepted in Zr or Zr-alloys for applications in nuclear reactors,

wherein the first and second compositions materially ~~material compositions of the inner component and the outer component are selected such that they~~ differ from each other, and wherein the second composition such that the inner component has a lower recrystallization temperature than the first composition ~~outer component~~; and

~~after that the cladding tube has been formed~~ finally annealing the cladding tube at a temperature and for a time that results in such that a first degree of recrystallization of the outer component and a second degree of recrystallization of the inner component, wherein the second degree is at least 97 percent and wherein the first degree is less than the first degree and recrystallization of the inner component substantially completely recrystallizes and such that the outer component partly recrystallizes but to

~~a lower extent than the inner component, wherein said final annealing is carried out such that the degree of recrystallization in the outer component is higher than 50 %.~~

2. (Canceled)

3. (Currently Amended) A method according to claim 1, wherein ~~said final annealing is carried out such that the~~ second degree of recrystallization ~~in the inner component~~ is substantially 100 % and the first degree of recrystallization ~~in the outer component~~ is between 50 % and 96%.

4. (Currently Amended) A method according to claim 1, wherein the second composition comprises ~~inner component does not contain more than~~ 1500 ppm Fe or less.

5. (Currently Amended) A method according to claim 1, wherein the second composition comprises ~~inner component does not contain more than~~ 1000 ppm O or less.

6. (Currently Amended) A method according to claim 1, wherein the first outer component ~~has a composition substantially comprising~~ comprises Zircaloy 2 or Zircaloy 4.

7. (Canceled)

8. (Canceled)

9. (Previously Presented) A method according to claim 1, wherein the inner component has a thickness such that it constitutes between 3% and 30% of the total thickness of the cladding tube.

10. (Currently Amended) A method according to claim 1, wherein the ~~final~~ step of finally annealing is carried out at a temperature of between 485°C and 550°C.

11. (Currently Amended) A method according to claim 1, wherein the ~~final~~ step of finally annealing is performed for ~~carried out during~~ 1 h to 6h.

12. (Currently Amended) ~~[[A]]~~ The method of claim 1, further using of a cladding tube,
~~the method comprising the step of:~~

~~producing the cladding tube according to the method of claim 1; and~~

~~[[using]]~~ installing the cladding tube in a fuel assembly for a nuclear boiling water reactor.

13. (Currently Amended) A cladding tube for nuclear fuel for a nuclear boiling water reactor, which cladding tube comprises:

an outer cylindrical component comprising a first composition mainly containing zirconium and having a first recrystallization temperature, wherein the outer cylindrical component has a first degree of recrystallization higher than 50 percent; and

an inner cylindrical component ~~which~~ comprising a second composition comprising 0.1 to 0.4 percentage by weight Sn, 400 to 1500 ppm Fe, less than 600 ppm O and the rest Zr, except for impurities of a content that does not exceed that which is normally accepted in Zr or Zr-alloys for applications in nuclear reactors, mainly contains zirconium and having a second recrystallization temperature lower than the first recrystallization temperature, wherein the inner cylindrical component has a second degree of recrystallization greater than the first degree of recrystallization and at least 97 percent, wherein the inner cylindrical component ~~which~~ is metallurgically bonded to the outer component, and wherein the first and second compositions materially material compositions of the inner component and the outer component differ from each other and are such that the inner component has a lower re-crystallization temperature than the outer component; wherein

~~the inner component has a substantially completely recrystallized structure and the outer component has a structure such that it is partly recrystallized but not to the same extent as the inner component, wherein the degree of recrystallization in the outer component is higher than 50 %.~~

14. (Canceled)

15. (Currently Amended) A cladding tube according to claim 13, wherein the second degree of recrystallization ~~in the inner component~~ is substantially 100% and the first degree of recrystallization ~~in the outer component~~ is between 50% and 96 %.

16. (Currently Amended) A cladding tube according to ~~any of the~~ claim 13, wherein the second composition comprises ~~inner component does not contain more than~~ 1500 ppm Fe or less.

17. (Currently Amended) A cladding tube according to ~~any of the~~ claim 13, wherein the second composition comprises ~~inner component does not contain more than~~ 1000 ppm O or less.

18. (Currently Amended) A cladding tube according to ~~any of the~~ claim 13, wherein the ~~outer component has a~~ first composition substantially comprising comprises Zircaloy 2 or Zircaloy 4.

19. (Canceled)

20. (Canceled)

21. (Previously Presented) A cladding tube according to claim 13, wherein the inner component has a thickness such that it constitutes between 3 % and 30 % of the total thickness of the cladding tube.

22. (Previously Presented) A fuel assembly for a nuclear boiling water reactor, comprising:

an enclosing tube; and

a plurality of cladding tubes according to claim 13 filled with nuclear fuel suitable for such cladding tubes for a boiling water reactor, wherein said plurality of cladding tubes are arranged inside said enclosing tube.

23. (Currently Amended) A method according to claim 1, wherein ~~said final~~ the second annealing is carried out such that the degree of recrystallization in the inner component is at least 97 percent ~~100 %~~ and the first degree of recrystallization in the outer component is between ~~[[50 %]]~~ 70 percent and ~~[[96%]]~~ 90 percent.

24. (Currently Amended) A method according to claim ~~[[1]]~~ 6, wherein the first composition further comprises between 1.2 and 1.7 percent Sn by weight of the first composition ~~outer component has a composition consisting of Zircaloy 2 or Zircaloy 4.~~

25. (Currently Amended) A cladding tube according to claim 13, wherein the second degree of recrystallization in the inner component is 100% and the first degree of recrystallization in the outer component is between ~~[[50%]]~~ 70 percent and ~~[[96 %]]~~ 90 percent.

26. (Currently Amended) A cladding tube according to ~~any of the claim~~ ~~[[13]]~~ 18, wherein the first composition further comprises between 1.2 and 1.7 percent Sn by weight of the first composition ~~outer component has a composition consisting of Zircaloy 2 or Zircaloy 4.~~

Please add the following new claims;

27. (New) The method of claim 1, wherein the step of finally annealing is carried out at a temperature of between 485°C and 515°C.
28. (New) The method of claim 1, wherein the second composition consists essentially of 0.1 to 0.4 percentage by weight Sn, 400 to 1500 ppm Fe, less than 600 ppm O and the rest Zr, except for impurities of a content that does not exceed that which is normally accepted in Zr or Zr-alloys for applications in nuclear reactors.
29. (New) The cladding tube according to claim 13, wherein the second recrystallization temperature is between 485°C and 550°C.
30. (New) The cladding tube according to claim 28, wherein the second recrystallization temperature is between 485°C and 515°C.